

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference L2402 PCT	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/US2004/034134	International filing date (day/month/year) 15.10.2004	Priority date (day/month/year) 12.11.2003	
International Patent Classification (IPC) or national classification and IPC H01L21/68, C09J7/02			
Applicant 3M INNOVATIVE PROPERTIES COMPANY et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 08.09.2005		Date of completion of this report 28.02.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Schlicke, B Telephone No. +31 70 340-1013 	

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**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/034134

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-17 as originally filed

Claims, Numbers

1-8 as originally filed

Drawings, Sheets

1/2-2/2 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/034134

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1,2
	No: Claims	3-8
Inventive step (IS)	Yes: Claims	1,2
	No: Claims	3-8
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1 Reference is made to the following documents:

D1: WO 03/017363 A (LINTEC CORPORATION) 27 February 2003
D2: EP-A-1 229 388 (NITTO DENKO CORPORATION) 7 August 2002
D3: EP-A-1 167 483 (SAEHAN IND), 2 January 2002
D4: EP-A-0 977 254 (NITTO DENKO CORP) 2 February 2000

2 Claims 1,2

2.1 Document D1 teaches (claim 1; page 23, line 3 - page 25, line 10) a method of protecting a silicon wafer during processing, said method comprising the steps of a) applying the tape to the wafer by heating it to a temperature sufficient for enabling the tape to properly follow the contour of the adherent surface, and b) finally curing the tape by using UV-radiation. The exposure to energy radiation may be performed prior to the processing of the wafer.

D1 fails however to disclose a protection method whereby the circuit side of the wafer is protected during back size grinding of the wafer.

Hence, the subject-matter of independent claims 1 and 2 appears to be novel in view of D1 (Article 33(2) PCT).

2.2 The document D4 teaches (claims 1-5; Par. [0005]; example 1) a protection method whereby the circuit side of the wafer is protected during back size grinding of the wafer, said method comprising the steps of applying a tape comprising an adhesive layer and a reinforcing layer to the wafer by heating it to a temperature above the melting point of the adhesive layer.

D4 fails however to disclose a further hardening step.

Hence, the subject-matter of independent claims 1 and 2 appears to be novel in view of D1 (Article 33(2) PCT).

- 2.3 D4 is directed to backsize grinding and therefore considered as being the closest prior art with regard to the subject-matter of claims 1 and 2.

Since it remains open what the technical effect resulting from the distinguishing feature (hardening step) could be, the objective technical problem in view of D4 may only be regarded as to provide a further method for protecting a wafer during grinding its backside.

The documents D1, D2 and D3 are not directed to backsize grinding. It therefore appears doubtful that the skilled person would use these teachings in order to solve the problem posed. The subject-matter of claims 1 and 2 therefore appears to involve an inventive step (Article 33(3) PCT).

3 Claim 3

- 3.1 The term "fluid" is considered as being vague and therefore not sufficiently clear for distinguishing the subject-matter of present claim 3 from the prior art (Article 6 PCT; PCT/GL 5.34).
- 3.2 It is further noted that claim 3, although drafted as product claim, is rather describing a process for applying the tape than disclosing the technical features characterizing the tape (Article 6 PCT; PCT/GL 5.34). As a consequence, any teaching describing a tape which is suitable for being applied by the process described in claim 3 takes away novelty of the claim even when the process is not explicitly mentioned.
- 3.3 D1 teaches an adhesive tape comprising a polymeric film and an adhesive layer which upon heating exhibits a low elastic modulus enabling the tape to properly follow the contour of the adherent surface. Further heating or UV-radiation results in a final cure.

Hence, the subject-matter of independent claim 3 lacks novelty in view of D1 (Article

33(2) PCT.

- 3.4 Document D2 teaches (example 1) an adhesive tape which can be stuck to a resist film image on a semiconductor wafer by heating the tape to 100°C. In a subsequent step, the tape is cured by irradiation with UV-rays.

Hence, the subject-matter of independent claim 3 lacks novelty in view of D2 (Article 33(2) PCT).

- 3.5 Document D3 teaches (claims) an adhesive tape for semiconductor chips having the same adhesive composition as suggested in the present claims. The tape is applied at 150°C to an adherent and finally dried at 175°C (paragraph 28). Since the tape comprises the same composition as the ones of the present invention, it appears very likely, that it also can be cured by further heating at higher temperatures or exposure to radiation.

Hence, the subject-matter of independent claim 3 lacks novelty in view of D3 (Article 33(2) PCT).

- 4 Dependent claims 4-8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step.